

What is claimed is:

1. An intravertebral reduction system, comprising:

a plurality of reduction elements positionable in an intravertebral space adjacent one another in contact with bony tissue, wherein said plurality of reduction elements act one upon the other upon sequential positioning thereof in the intravertebral space thereby compressing cancellous bony tissue and applying an outwardly directed corrective force in the intravertebral space to restore the vertebral body.

2. The system of claim 1, wherein said plurality of reduction elements are linked to one another.

3. The system of claim 2, wherein said plurality of reduction elements are linked by a connecting element extending through said plurality of reduction elements.

4. The system of claim 2, wherein said plurality of reduction elements are linked by a connecting element extending between adjacent ones of said plurality of reduction elements.

5. The system of claim 1, wherein said plurality of reduction elements each include a spherical shape.

6. The system of claim 1, wherein said plurality of reduction elements are comprised of a material selected from the group consisting of: PMMA, resorbable polymers, and calcium hydroxide.

7. The system of claim 1, wherein at least a portion of said plurality of reduction elements include exterior surface features to facilitate engagement between adjacent reduction elements.

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8. The system of claim 7, wherein said exterior surface features include planar surfaces.

9. The system of claim 7, wherein said exterior surface features include recesses.

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10. The system of claim 9, further comprising a material placeable in the intravertebral space around said plurality of reduction elements and in said recesses thereof for post-operative maintenance and stability of said plurality of reduction elements in the intravertebral space.

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11. The system of claim 7, wherein said exterior surface features include a cavity extending through said reduction element.

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12. The system of claim 1, further comprising a material placeable in the intravertebral space around said plurality of reduction elements for post-operative maintenance and stability of said plurality of reduction elements in the intravertebral space.

13. The system of claim 12, wherein said material is selected from the group consisting of: PMMA and resorbable bone cement.

14. The system of claim 1, further comprising a delivery member positionable adjacent the intravertebral space, said delivery member including a passage for delivery of said plurality of reduction elements thereto.

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15. An intravertebral reduction system, comprising:

at least one elongate reduction element positionable in an intravertebral space, said at least one elongate reduction element including a linear insertion configuration and being deformable transversely to said insertion configuration to substantially occupy a volume within the intravertebral space and compress cancellous bony tissue within the vertebral body to apply an outwardly directed corrective force thereto as said at least one elongate reduction element is deformed in the intravertebral space.

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16. The system of claim 15, wherein said at least one elongate reduction element is deformed by folding into an accordion-like shape within the intravertebral space.

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17. The system of claim 15, wherein said at least one elongate reduction element deforms by coiling into a spiral within the intravertebral space.

18. The system of claim 15, wherein said at least one elongate reduction element is comprised of shape memory alloy material (SMA).

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19. The system of claim 15, wherein said at least one elongate reduction element is made from a material selected from the group consisting of: a semi-rigid elastomer and spring metal.

5           20. The system of claim 15, wherein said at least one elongate reduction element is comprised of a pair of reduction elements extending along one another in said linear insertion configuration and said pair of reduction elements deform in a direction away from one another when inserted in the intravertebral space.

10           21. The system of claim 15, further comprising a material placeable in the confined volume around said at least one reduction element for post-operative maintenance and stability of said at least one reduction element in the intravertebral space.

15           22. The system of claim 21, wherein said material is selected from the group consisting of: PMMA and resorbable bone cement.

23. The system of claim 15, further comprising a delivery member positionable adjacent the intravertebral space and including a passage for delivery of said at least one reduction element to the intravertebral space.

20           24. The system of claim 23, wherein said delivery member confines said at least one reduction element in said linear insertion configuration and said at least one reduction element is deformable upon exiting a distal end of said delivery member.

25. A method for reducing a vertebra, comprising:

accessing an intravertebral space of the vertebra; and

sequentially positioning a plurality of reduction elements in the intravertebral space in

5 contact with bony tissue of the vertebra to exert an outwardly directed corrective force to the vertebra.

26. The method of claim 25, further comprising:

placing material in the intravertebral space around the reduction elements; and

10 curing the material to stabilize the plurality of reduction elements in the intravertebral space.

27. The method of claim 25, further comprising:

removing the plurality of reduction elements from the intravertebral space; and

15 placing material in the intravertebral space to stabilize the reduced vertebra.

28. The method of claim 25, further comprising:

placing a delivery member adjacent the vertebra; and

delivering the plurality of reduction elements to the intravertebral space through a

20 passage of the delivery member.

29. The method of claim 28, further comprising placing material through the delivery

member and into the intravertebral space around the plurality of reduction elements.

30. A method for reducing a vertebra, comprising:

accessing an intravertebral space of the vertebra;

positioning at least one reduction element in the intravertebral space in contact with bony

5 tissue of the vertebra; and

simultaneously compacting the bony tissue with the at least one reduction element and  
occupying the volume created by compaction of the bony tissue with the at least one reduction  
element in a non-pressurized, non-fluid environment in the intravertebral space to exert an  
outwardly directed corrective force to the vertebra.

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31. The method of claim 30, wherein positioning at least one reduction element  
includes sequentially positioning a plurality of reduction elements in the intravertebral space.

32. The method of claim 31, further comprising:

15 placing material in the intravertebral space around the plurality of reduction elements;

and

curing the material to stabilize the plurality of reduction elements in the intravertebral  
space.

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33. The method of claim 31, further comprising:

removing the plurality of reduction elements from the intravertebral space; and

placing material in the intravertebral space to stabilize the reduced vertebra.

34. The method of claim 33, wherein the plurality of reduction elements are linked together.

35. The method of claim 31, further comprising:  
5 placing a delivery member adjacent the vertebra; and  
delivering the plurality of reduction elements to the intravertebral space through a passage of the delivery member.

36. The method of claim 30, wherein positioning the at least one reduction element in  
10 the intravertebral space includes approaching the intravertebral space with the at least one  
reduction element in a linear configuration and deforming the at least one reduction element  
transversely to the linear insertion configuration to compact the bony tissue.

37. The method of claim 36, wherein deforming the at least one reduction element  
15 includes folding the at least one reduction element in an accordion like manner.

38. The method of claim 37, further comprising placing material in the intravertebral space around the folded reduction element.

20 39. The system of claim 36, further comprising confining the at least one reduction member in the linear insertion configuration in a passage of a delivery member and deforming the at least one reduction member distally of the passage in the intravertebral space.

40. The method of claim 39, wherein deforming the at least one reduction element includes coiling the at least one reduction element in a spiral.

41. The method of claim 40, wherein the at least one reduction element includes a pair  
5 of reduction elements positioned adjacent one another in the linear configuration and deforming  
the at least one reduction element includes coiling the pair of reduction elements away from one  
another in a spiral.

42. The method of claim 41, further comprising placing material in the intravertebral  
10 space around the coiled pair of reduction elements.

43. The system of claim 41, further comprising confining the pair of reduction  
members in the linear insertion configuration within a passage of a delivery member for delivery  
of said pair of reduction elements to the intravertebral space and deforming the pair of reduction  
15 elements distally of the delivery member.